

# Man-made green monuments of Central Asia: Some examples of Uzbekistan

ABDUSHUKUR ABDUCHALILOVITCH KHANAZAROV, GALINA MIHAILOVNA CHERNOVA, BRONISLAV IVANOVITCH VENGLOVSKIY, KAMIL SATAROVITCH ASHIMOV and SOVIET KENJABAJVITCH KENJABAEV

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## Introduction

The conservation of unique places in nature is part of environmental protection. Beautiful landscapes, geological expositions, ancient strata, lakes, forest massifs, age-old trees, natural bushes – all are part of a heritage that deserves to be conserved. Ancient parks, groves, avenues or dendrology parks created by man can legitimately be classified as monuments of nature. The unique walnut-fruit forests of southern Kyrgyzstan are surely one of nature's most wonderful monuments. If these forests are to survive, they need to be replenished and not merely conserved.

## The first mountain afforestation in Central Asia

Alone in Uzbekistan, 401 monuments are registered and protected under a decree from the Council of Ministers. Among them are the valuable and stunning man-made stands in the forests of Aman-Kutan and Aktash, created at the end of the 19th and the beginning of 20th centuries. The historical creation of forest areas in the mountains surrounding the Aman-Kutan river basin, near Samarkand, and the Aktash river, 60 km from Tashkent, are the legacy of a few progressive people, notably N.I. Korolkov (Governor of Turkestan 1879–1883) and S.Y. Rauner (Head, Department of Agriculture of Turkestan 1897–1901).

The Aman-Kutan forest stand is located in western spurs of the Zeravshan range. The stand covers an area of 2158 ha and is a wonderful example of the first mountain afforestation in Central Asia (formerly a region of Turkestan). These works were carried out, first and foremost, because the then tsarist Russian government was forced to react after mudslides had caused devastation, with hard economical consequences.

Under the leadership of N.I. Korolkov work was carried out in the Aman-Kutan river basin by the foresters Navrotskiy and Nevesskiy. In 1879, when work commenced, this area consisted of ploughed fields, as in Russia at the time of the steppe afforestation. In autumn 1879 seedlings were planted, whereby black locust (*Robinia pseudoacacia* L.), ash (*Fraxinus pennsylvanica* Marsh.), tree-of-heaven (*Ailanthus altissima* (Mill.) Swingle), walnut (*Juglans regia* L.), honey locust (*Gleditsia triacanthos* L.), mulberry (*Morus alba* L.), Crimean pine (*Pinus nigra* Arnold *fa. pallasiana*), apricot (*Prunus armeniaca* L.) and almond (*Prunus dulcis* (Mill.) D.A. Webb), were the main species. Planting was a success because recent heavy precipitation had prevented these hillsides from being total ploughed. Later on trees were planted on horizontal terraces designed by N.I. Korolkov.

After 1884, the work in Aman-Kutan progressed into the Fergana region and was supervised by M. Nevesskiy, and N.I. Korolkov. Afforestation in Peshkaut around the Shakhimardan river basin was carried out applying the same principles as in Aman-Kutan. The wonderful plantings in Fergana and park landscapes were the deserts of N.I. Korolkov.

One especially interesting and encouraging survival in the stands of Aman-Kutan is the grove of Crimean pine, planted in 1887 and 1888. It is located on a sloping dry watershed between Bazarmasay and Bulbuzarsay at an altitude of 1460 m. According to B.A. BEDER (1980: 66) the Crimean pine had attained heights of 28 m and trunk diameters of 70 cm in 1973. In addition, on a northern hillside along the upper reaches of the Aman-Kutan river, 17 Crimean pines are still standing. Planted in 1908, they had reached 27 m and their trunk diameter measured 57 cm in 1973. The pines bear an abundance of fruit, self-seedlings are met. It is particularly interesting that Beder's evidence shows that the 100-year-old Crimean pines in Yalta were not as high as the 85-year-old trees in Aman-Kutan. Apart from Crimean pine the prevailing species in Aman-Kutan were black locust, tree-of-heaven and walnut. Here the forest stands were saved over an area of 330 ha (PADALKO 1965; KHANAZAROV 1978).

In 1939/1940 150 seedlings of Crimean pine were planted in the watershed of Karagachsay and Bazarmasay at altitudes between 1400 and 1600 m. These trees had attained 14 m in 1973 and trunk diameters of 25 cm. Samarkand forest farmers in Aman-Kutan conducted the largest works on reproduction of the Crimean pine. 35 000 2-year seedlings were brought from the Crimea and planted on terraces on hillsides and at the bottom of Maydansay.

Walnut, together with pine, is very important to Aman-Kutan. Owing to its longevity, a strongly developed root system and a well-developed crown, walnut entirely meets the requirements of land reclamation. It fixes the soil and prevents it from being washed away, thus regulating water flow down the hillsides. Moreover, walnut provides valuable fruit that can be harvested and sold. As V.P. UCHAYKIN noted (1932: 45), «the great possibilities of crops of fruit trees in Central Asia should be thoroughly exploited. 30 to 40 years of experience in the creation of forest stands on the hillsides of Aman-Kutan and in Aktash clearly demonstrates that walnut is a viable crop in mountainous regions up to 1500 m above sea level.» Today, the forest region around Aman-Kutan presents itself as a wonderful man-made monument of Central Asia – a beautiful forest massif, which has great economical, reclamation and aesthetical value.

The history of the forest massif creation in the Aktash river basin deserves special attention and respect. In Turkestan, before the establishment of the Department of Agriculture and State Property in 1897, economic traditions of the nomadic and settled inhabitants of the region stood at odds with the order of the tsarist Russian government which protected forest stands (97 sites).

In one of his reports the Russian Director of the Forest Department stated that the local administration neglected its task of supervision and undertook no measures to stop the inhabitants of the region from felling trees without permission, although it was legally prohibited. Consequently, the department set up a branch office in Turkestan and charged S.Y. Rauner with the supreme management of forestry. In one of his reviews entitled «The mountain forests of Turkestan and

their importance for water management of the region» (RAUNER 1901), information appeared on the influence of mountain forests on water distribution in rivers, cattle pasturage, and the hydrologic role of the forests. This work is still valid and relevant to the lives of the people living in Central Asia.

The system of hydro-technical and forestry works, which took local conditions and precipitation into account, was developed before afforestation was in a project headed by S.Y. Rauner. In regions with precipitation and steep and almost bare hillsides, the first challenge was to preserve as much water as possible so horizontal canals (terraces) were created along the hillsides. The soil that was shifted was used to build banks of loose earth into which the trees were planted. It was clear that tree selection had to correspond to their natural extension in mountains. It was also recognised that strictly horizontal terraces and water collecting ditches were of great importance to keep the water from flowing along the surface. The more so because mudslides from the Aktash threatened to block the irrigation canals of Iskander and Khanym that watered the fields surrounding the Tashkent oasis.

The terraces on steep hillsides were located closer together than those on the gentler slopes. Whereas primitive terraces with a triangular profile were constructed under N.I. Korolkov's project in Aman-Kutan, these had the form of trapezia, and came to be known in the history of afforestation works in Central Asia as «Aktash» terraces.

From 1896 to 1898 the first-class forester Deysha, and later N.V. Pischikov who had gained wide experience of afforestation in the province of Stavropol, managed these works. Over an area of 1739.85 ha forests and countryside were created in the Aktash mud basin. Under the design of S.Y. Rauner the entire territory was divided into four categories according to the gradient: less than 20°, 20–25°, 25–30° and 30–35°.

The decision was taken to cultivate mainly local species. The afforestations consisted, for the main part, of walnut and American ash (*Fraxinus americana* L.), with pistachio (*Pistacia vera* L.), almond, oak (*Quercus robur* L.) and ash as secondary species. N.V. PISHIKOV (1909), justifying economically the choices of species, wrote: «In the initial phase, forestry takes second place as priority is given to stopping mudslides. This is why the canal terraces are of prime importance. Later as the stands develop and grow they acquire more and more importance in their own right.»

Eventually, the protection of the Aktash forest site territory was fully realised. The cessation of cattle pasturage and the well-organised protection of forest stands from felling positively influenced their condition. Great variety, strong growth and the development of grass, trees and bushes permit the cultivation of various forest nut and fruit trees in the mountains and are simultaneously favourable to soil forming processes. This, in turn, promotes a sufficient accumulation of water, humus and nutritional substances in the upper layer of soil. The forest soil has high water retention properties that protect the soil cover and prevent water from pouring down the steep hillsides. The vital need for such protection and the retaining role played by the forest is well recognised, especially in mountain regions, where land is threatened by erosion. The stands of oak, walnut, and ash amongst others, growing over an area of 695 ha in the basin of the Aktash river bear witness to this. The productivity of forests on the Aman-Kutan hillsides has risen sharply. Aktash, one of the basins of the Chatkal mountain range most endangered by mudslides, is far better protected.

At the end of the 19th century work commenced in the Fergana valley of Uzbekistan, in Shakhimardan and in the river basin of Peshka (project of N.I. Korolkov), and in Kyr-

gystan in the Kyzyl-Ata river basin, located on the southern hillsides of Chatkal range.

Starting in 1929, and based on experience gained before the revolution, afforestation of mountainous regions was extended to other Central Asian republics. Such works began, for example, in Kushka pistachio stands in Turkmenistan (experience of pistachio crops of V.V. Ogievskiy); in the walnut-fruit forests of southern Kyrgyzstan, and after 1932, in the spruce (*Picea schrenkiana* Fisch. et Mey.) forests of this republic. In the same year, afforestation of mountains in the Selbursay basin of Central Tajikistan were resolved on, in 1937 in Tarnchi region of Southern Tajikistan, and in 1938 in nearby Dushanbe in Zargar and the Maulvano region (KOCHERGA 1965).

In 1949, afforestation began on the hillsides of the Malaya Almatinka river basin and the adjacent territories of Zailiyskiy Alatau. From this period onwards, when the Republican Ministries of Forestry had been established, the cultivation of forest crops was nurtured in almost all forests of Central Asia. Full use was made of the experience gained in the first mountain afforestation and reclamation works in the basins of Aman-Kutan and Aktash rivers.

However, the greatest credit must go to the outstanding people who in former times made these man-made monuments possible in Central Asia, namely: N.I. Korolkov, S.Y. Rauner, Deysha, and N.V. Pischikov, amongst others. Thanks to their love of nature and resolution on the issue of afforestation works in Central Asia people today can appreciate the «green monuments» they helped to create.

## Summary

This essay traces the history of a number of major afforestation programmes that were carried out from the late 19th and early 20th century. At the time trees were planted on the steep slopes for landslide protection. In the meantime, the resulting forests are perceived as natural monuments and as such worthy of conservation. The achievement of the foresters who planned and carried out the afforestation process deserve our full approbation today.

Translation: ANGELA RAST-MARGERISON

## Zusammenfassung

### Von Menschen geschaffene Naturdenkmäler in Zentralasien: Beispiele aus Usbekistan

Im Aufsatz wird die Geschichte von mehreren Aufforstungen im späten 19. und frühen 20. Jahrhundert im Gebiet des heutigen Usbekistans nachgezeichnet. Die Pflanzungen von Bäumen an den Berghängen bezweckten damals den Schutz vor Rutschungen. Die daraus entstandenen Wälder werden gegenwärtig als Naturdenkmal betrachtet und gelten damit als schützenswert. Die Forstleute, welche die Aufforstungen planten und durchführten, verdienen heute die volle Anerkennung und Würdigung ihrer Leistungen.

Übersetzung: MARGRIT IRNIGER

## Résumé

### Monuments naturels créés par l'homme en Asie centrale: quelques exemples en Uzbekistan

Cet article retrace l'histoire de quelques grandes opérations de reboisement réalisées à la fin du 19e et au début du 20e siècles

dans le territoire de l'actuelle République d'Ouzbékistan. Les plantations avaient pour but, à l'époque, de créer des forêts de protection sur des versants sujets à des glissements de terrain. Les forêts qui en ont résulté sont actuellement considérées comme des monuments naturels et bénéficient à ce titre d'un statut de protection. Les forestiers qui ont planifié et dirigé ces travaux méritent la reconnaissance des générations actuelles.

*Résumé:* JEAN-PIERRE SORG

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## Authors

ABDUSHUKUR ABDUCHALILOVITCH KHANAZAROV, GALINA MIHAILOVNA CHERNOVA, Uzbekistan Forestry Scientific Research Institute, Tashkent, Uzbekistan.

BRONISLAV IVANOVITCH VENGLOVSKIY, KAMIL SATAROVITCH ASHIMOV, Institute of Forest and Walnut Research, National Academy of Sciences, Bishkek and Jalal Abad, Kyrgyzstan.

SOVIET KENJABAJVITCH KENJABAEV, Biosphere Institute, Southern Department of the National Academy of Sciences, Jalal Abad, Kyrgyzstan.